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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,442	03/31/2004	Satoshi Hada	2635-208	3781
23117 7590 10/29/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER OLSEN, KAJ K	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 10/29/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/813,442	<b>Applicant(s)</b> HADA ET AL.	
	<b>Examiner</b> Kaj K. Olsen	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,13 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 3-5,9-12,14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3-31-04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6-8, 13, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hada et al (USP 6,347,544) in view of Sagisaka et al (USP 5,709,198).
3. Hada discloses a gas concentration detecting apparatus comprising a control unit configured to control a voltage  $V_c$  applied to a terminal 41 connected to the electrode of sensor 30, a measurement unit 50 configured to measure a current flow caused by the applied voltage corresponding to a concentration of a component of the gas, a change causing unit (20, 21) configured to cause a change in the applied voltage to the sensor element, a change amount measuring unit configured to measure an amount of change of each the current and voltage values ( $\Delta I$ ,  $\Delta V$ ) caused in response to the change in voltage value, and a calculation unit configured to calculate an amount of a resistance component  $R$  on the basis of the ratio of the changes in current value  $\Delta I$  and the voltage value  $\Delta V$ . See fig. 1, 3, and 5, col. 6, l. 39 through col. 7, l. 24 and col. 8, ll. 24-43. Hada does not explicitly disclose a detection unit configured to detect an abnormality relating to the resistance component. Sagisaka teaches in an alternate resistance monitoring apparatus that the determined sensor resistance  $Z_{dc}$  can be utilized to determine if there is either a high or low element temperature abnormality in the sensor. See fig.

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8 and col. 10, ll. 53-63. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Sagisaka for the apparatus of Hada so that the microcomputer can be alerted that the sensor is out of a preferred temperature range.

4. With respect to the use of a feedback amplifying circuit connected to each terminals, amplifiers 45a and 47a of Hada (see fig. 3) appear to be providing the same function as the feedback amplifying circuits 21 and 24 of the instant invention.

***Allowable Subject Matter***

5. Claims 3-5, 9-12, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: With respect to claim 3, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1-3 with particular attention to where the determination unit is configured to determine that there occurs the abnormality when the amount of change in either the current or voltage value is equal to or substantially regarded as zero. With respect to claim 4, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1, 2, and 4 with particular attention to where the determination unit is configured to determine that there occurs the abnormality when either the current or voltage value measured is fixed at a boundary value or thereabouts of a range in which the feedback amplifying circuit operates. With respect to claim 9, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1, 7 and 9 with particular attention to the presence of a determination unit configured to determine

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whether or not the actually operated amount of either the current or voltage is abnormal. With respect to claim 14, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1, 13, and 14 with particular attention to the determination unit configured to determine that there occurs the abnormality when the actually operated amount is zero or a value substantially regarded as zero. With respect to claim 15, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1, 13, and 15 with particular attention to the determination unit configured to determine that there occurs the abnormality when either the current or voltage value measured is fixed at a boundary value or thereabouts of a range. Claims 5 and 10-12 are objected to because they depend from claims containing allowable subject matter.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okamoto (USP 6,136,169).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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October 24, 2007



KAJ K. OLSEN  
PRIMARY EXAMINER